OHIO WATER
RESOURCES CENTER

2022-2023 ANNUAL REPORT

WATER RESOURCES CENTER OHIO WRC

THE OHIO STATE UNIVERSITY

USGS science for a changing world

NIWR

Ohio Water Development Authority

Executive Summary

The Ohio Water Resources Center (Ohio WRC) is the federally authorized and state-designated Water Resources Research Institute for the State of Ohio. Our mission is to enable and conduct state-relevant water-related research; foster collaboration among academic investigators, governmental bodies and water professionals; train the next generation of water scientists; and educate the public on water resources issues in Ohio. With evidence-based scientific information, we form links between water researchers and those who manage and use water.

ADVISORY BOARD

The distinguished members of our Advisory Board provide critical expertise and guidance for advancing our work across all areas.

Kathryn Bartter
Executive Director
OSU, Sustainability Institute

Sandy Eberts
Director
Earth Systems Processes Division, USGS

Ken Heigel
Executive Director
Ohio Water Development Authority

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Division Chief
Ohio EPA, Division of Surface Water

Amy Jo Klei
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Ohio EPA, Division of Drinking and Ground Water

Gregory Nageotte
Watershed Program Administrator
Ohio Department of Agriculture

David Straub
Associate Director
USGS, Ohio-Kentucky-Indiana Water Science Center

Janet Weisenberger
Senior Associate Vice President
OSU, Office of Research

Christopher Winslow
Director
Ohio Sea Grant

By the Numbers 2018 to 2023

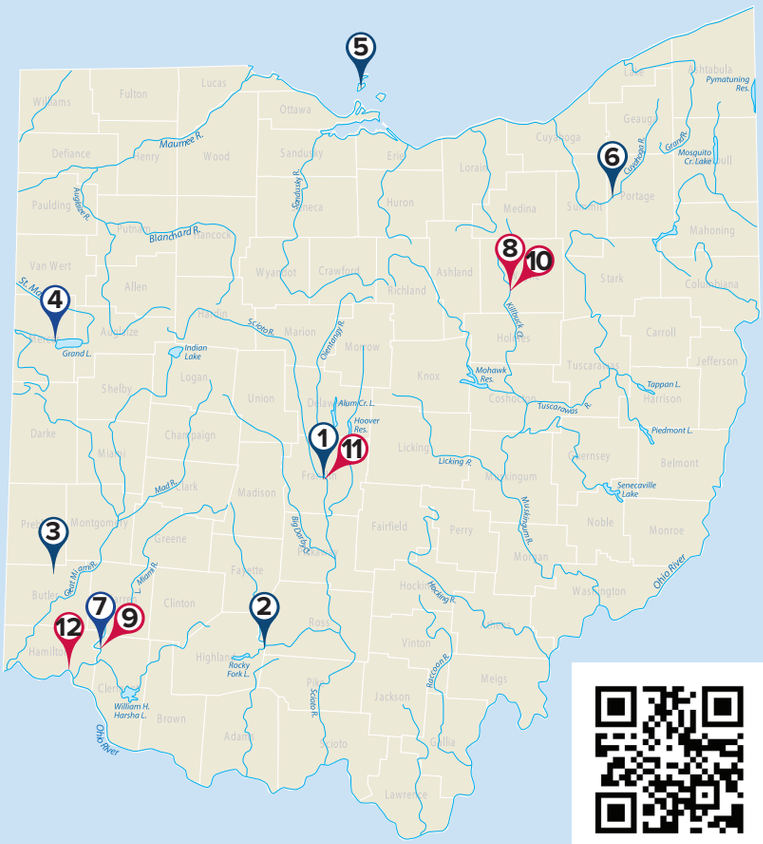
The Ohio WRC funded research across Ohio with **37 projects at 10 Ohio Universities**

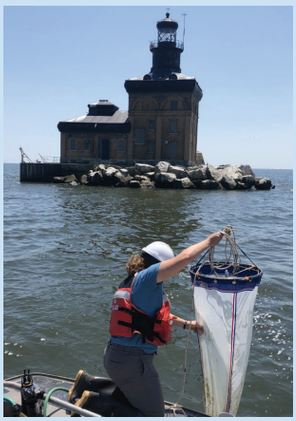
For every federal dollar invested **$26** was leveraged from other sources

The Ohio WRC leveraged its influence by devoting **1,000 hours on boards & committees**

Ohio WRC research has produced **250 publications, theses, & presentations**

2022-2023 Activities



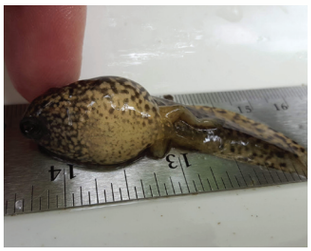


Water Quality Sample Ohio WRC Projects

1. **Daniel Gingerich and Jeffrey Bielicki, OSU**, are building a database of water rates across Ohio to evaluate current and future drinking water affordability.
2. **David Singer, Kent State**, is addressing water contamination from coal mining by establishing a time frame for exhaustion of acid production from mine drainage.
3. **Jonathan Levy, Idah Ngoma, and Jason Rech, Miami U**, are quantifying induced infiltration by municipal production wells to protect drinking water.
4. **Silvia Newell, Stephen Jacquemin and Jason Doll, WSU**, are developing an improved model of bloom formation and toxicity based on the identified link between algae community, growth, and toxin production.
5. **Rachel Gabor, OSU and Rachel Eveleth, Oberlin**, are quantifying the relationship between algal blooms, carbon cycling, and water quality in lakes.
6. **Natalie Hull, OSU and Elizabeth Crafton-Nelson, Hazen**, are identifying pathways of microcystin biodegradation in water treatment residuals to foster sustainable residuals management.
7. **Michael Booth, Steve Matter, and Adam Lehmann, UC**, are assessing the usage of large woody debris as a low-cost management tool for improving water quality in urban streams.

Water Technology Sample Ohio WRC Projects

8. **Jonathon Van Gray, OSU**, is investigating the bacterial populations of surface waters in order to better manage the spread of antibiotic resistance.
9. **Dylan Ward, Reza Soltanian, Daniel Sturmer, and Adam Lehmann, UC and Hamilton County SWCD**, are characterizing groundwater and surface water exchange in urban karstic regimes to assist with conservation efforts.
10. **Kennedy Doro and Sam Miller, UT and Steve Lyon, OSU**, are quantifying water flow pathways with imaging technology to improve the management of nutrient loads from agricultural settings.
11. **Linda Weavers and Tim Wolfe, OSU**, are creating innovative design standards for public water systems.
12. **Tao Li and Steven Buchberger, UC**, are developing and testing a wireless distributed sensor network for monitoring plumbing system water use.



Protecting Our Public Health: Developing Safer Water Infrastructure for All

The links we form between water researchers and those who manage and use water have allowed the Ohio WRC to assist with the development of a state-wide wastewater monitoring network. Beginning in 2020, this research has allowed for monitoring of COVID-19 trends and changes. By collecting samples from over 70 municipal wastewater treatment systems across the state of Ohio, scientists have used SARS-CoV-2 gene fragments and extracted viral RNA to track the spread of the virus. This data has provided evidence of current and emerging variants circulating in local populations, even before positive cases were identified. Initial work done through the collaboration of the Ohio WRC, university partners, Ohio EPA, and Ohio Dept. of Health (ODH) has now been transferred to ODH to continue this monitoring.

COMMUNITY OUTREACH

Protecting our public health starts with community outreach. The Ohio WRC is actively creating the next generation of water smart citizens by connecting community members with water professionals and educators.

Sample Activities:

- Central Ohio Children's Water Festival
- Water Steward Program for the Lower Olentangy Watershed
- Seminars, workshops and conferences for water professionals

By the Numbers 2018 to 2023

10,300
Water samples collected

127,500
People-hours engaged in events

22 MILLION
Individuals reached through online and printed media

WATER RESOURCES CENTER OHIO WRC

http://wrc.osu.edu

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